

## REMARKS

### **(A) STATUS OF THE APPLICATION**

Applicants thank the Examiner for her explanation of the rejections in the Non-Final Office Action dated January 05, 2007.

#### **(I) DISPOSITION OF CLAIMS**

- (i) Claims 1-11 and 13-34 are pending in the application.
- (ii) Claim 12 was previously canceled.
- (iii) Claims 16-34 are withdrawn under 37 C.F.R. § 1.142(b).
- (iv) Claims 1-11, and 13-15 are rejected under 35 U.S.C. § 103(a).
- (v) Claim 6 is rejected under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph.

#### **(II) APPLICANTS' ACTION**

- (i) Applicants have amended Claim 6 Applicants have amended Claims 14 and 15 for typographical errors. The claims did not have a period at the end of the sentence.
- (ii) Applicants also respond to the above rejections.

### **(B) RESPONSE TO REJECTION UNDER 35 U.S.C. § 112, 2<sup>ND</sup> PARAGRAPH-CLAIM 6**

Applicants have amended Claim 6 to include the specific recitation of reactive groups – X, i.e., –Cl, –Br, and –I. Applicants respectfully submit that the indefiniteness is removed.

### **(C) RESPONSE TO REJECTION UNDER 35 U.S.C. § 103(A)—CLAIMS 1-11 & 13-15**

The Examiner has rejected Claims 1-11 and 13-15 under 35 U.S.C. § 103(a) as being obvious over U.S. Pat. No. 6,207,392 to Weiss, *et al.* ("Weiss"), in view of U.S. Pat. No. 6,048,515 to Kresse, *et al.* ("Kresse"), further in view of U.S. Pat. No. 5,922,537 to Ewalt, *et al.* ("Ewalt"), further in view of U.S. Pat. Pub. No. 2002/0120405 to Edwards, *et al.*

("Edwards"), further in view of Langmuir Journal Publication to Templeton, *et al.* ("Templeton"), and WO 2001/53478 to Choo, *et al.* ("Choo").

(ii) Applicants' Response

Section 2142 of the MPEP indicates that a *prima facie* case of obviousness is established only when the following three conditions are collectively met:

- (1) all of the claim limitations are either taught, or suggested by the cited prior art;
- (2) there is some suggestion or motivation to modify or combine the cited prior art references; **AND**
- (3) there is a reasonable expectation of successfully producing the claimed invention via such a combination.

Applicants contend that the Examiner has not met her burden of proving *prima facie* obviousness because none of the three required conditions (*supra*) are met.

According to the Examiner, Weiss teaches a bifunctional linking agent. However, Weiss's linking agents are small molecules (See table in Col. 11). In contrast, the linking agents of the present invention are bifunctional proteins, which are much larger molecules.

Kresse suggests a method for possibly enhancing bifunctional targeting compounds. However, the Kresse bifunctional linker is for example, a small molecule, but not a protein. (Col. 12, Lines 17-30; Col 13, Lines 14-25). None of the examples show a bifunctional linker as protein either. The targeting molecules are proteins, but not the bifunctional linkers.

Ewart mentions the Zinc-finger proteins as a recognition molecule (Col. 7, Lines 39-67). However, Ewart mentions the Zinc-finger protein in the context of using DNA as the bifunctional linker. A person skilled in the art differentiates the DNA molecule from a protein, the bifunctional linker in the present invention. Secondly, Ewart links a particle with a protein, whereas the present invention links two nanoparticles.

According to the Examiner, Edwards teaches GST/GSH tags for selectively anchoring proteins to a solid support, specifically to a semiconductor measuring device. However, Edwards demonstrates GST-GSH interaction on a flat substrate surface. As is known to a person of ordinary skill in the art, flat surfaces and nanoparticles differ significantly in their functionalization chemistry. For example, nanoparticle functionalization is usually accomplished during nanoparticle synthesis. A flat surface can be functionalized at any time, generally. What can be demonstrated experimentally on a flat surface cannot be necessarily translated to a nanoparticle surface.

According to the Examiner, Templeton teaches tiopronin monolayers surrounding metallic nanoparticles. However, Templeton relates to water-soluble nanoparticles. It does not relate to a protein-based bifunctional linkers.

According to the Examiner, Choo teaches a Zinc-finger protein binding to a sequence 100% identical to the instant SEQ ID NO: 1 and that the protein is particularly useful in biotechnology. However Choo does not anticipate the use of Zinc-finger proteins in materials manipulation.

Applicants respectfully submit that all claim limitations are not taught even when said references are combined. Particularly, using a protein as a bifunctional linker is not provided even when the references are combined. Some of the references mention using a linking molecules, such as a small molecule, but not a protein. Therefore the first condition of the prima facie case of obviousness is not satisfied.

None of the references provide a suggestion or motivation to combine the references. In fact, the Examiner combines six references to arrive at claim limitations of the present set of claims. Clearly, the motivation to combine is absent.

Finally, even if all references were combined, Applicants respectfully submit that a person skilled in the art would only arrive at bifunctional linking using small molecules

but not proteins. Thus, there would be no reasonable expectation of success when such references are combined.

Because the Examiner has not established a *prima facie* case of obviousness, the present claims are not obvious under 35 U.S.C. § 103(a).

**(D) IDS**

Applicants note that the examiner has found that the IDS does not comply with 37 CFR 1.98(a)(2) in that a copy of the 1999 reference Martin (Adv. Mater.) was not provided but was listed on the IDS. A copy of the missing reference is submitter herewith.

### **CONCLUSION**

In view of the above remarks, Applicants respectfully submit that the stated grounds of rejection have been properly traversed, accommodated, or rendered moot and that a complete response has been made to the Non-Final Office Action dated January 05, 2007.

Therefore, Applicants believe that the application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited.

If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to contact the undersigned at the number provided.

Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E. I. du Pont de Nemours & Co.).

Respectfully Submitted,

BY:

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